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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/997,933	11/30/2001	Hiroaki Ueno	2803.66013	5351

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EXAMINER

COLON, ROCIO

ART UNIT PAPER NUMBER

2651

DATE MAILED: 02/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/997,933

Applicant(s)

HOROAKI UENO

Examiner

Rocio Colon

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 November 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,9-11,15-18,20-23, 27-30 and 32 is/are rejected.
- 7) ☒ Claim(s) 4-8, 12-14, 19, 24-26, 31 and 33 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 9-11 and 15-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Baker et al. (USPN 5,784,296).

Regarding claim 1, Baker et al. disclose a method of measuring non-linearity in the input/output of an object which receives input signals and produces output signals in response to the input signals, comprising the steps of:

feeding signals of a reference pattern to said object to measure a first predetermined harmonic component from the output signals thereof (column 2, lines 40-42);

selecting signals of a pattern from signals of plural kinds of predetermined patterns; feeding signals of said selected pattern to said object cyclically to measure a second predetermined harmonic component from the

output signals thereof (column 2, lines 42-45, the accumulated discrete samples are the first and second harmonic component); and

calculating a non-linear transition shift NLTS in said object from said first predetermined harmonic component and from said second predetermined harmonic component (column 9, lines 15-16, p is the amplitude of the harmonic sample).

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Regarding claim 2, Baker et al. disclose a method of measuring non-linearity in the magnetic recording/reproduction of a medium comprising the steps of:

measuring a first predetermined harmonic component from the reproduced signals of the reference signals magnetically recorded in a medium (column 2, lines 36-38 and lines 40-42);

measuring a second predetermined harmonic component from the reproduced signals for each of the plural kinds of to-be-measured signals magnetically recorded in said medium (column 2, lines 40-42); and

calculating a non-linear transition shift NLTS in the magnetic recording/reproduction from said first predetermined harmonic component and from said second predetermined harmonic component corresponding to each of the to-be-measured signals (column 9, lines 15-16, ρ is the amplitude of the harmonic sample).

Regarding claim 3, Baker et al. disclose a measuring method according to claim 2 above, wherein said predetermined harmonic component is a fifth harmonic component (column 8, lines 58-61).

Regarding claims 9-11, Baker disclose a LSI for magnetic recording/reproduction which generates reference signals that are to be magnetically recorded into a medium, measures a first predetermined harmonic component from the reproduced signals thereof (column 2, lines 36-38 and lines 40-42); generates to-be-measured signals corresponding to said reference signals that are to be magnetically recorded into said medium (column 8, lines 58-59), and measures a second predetermined harmonic component from the reproduced signals thereof (column 2, lines 40-42), wherein there are incorporated a circuit for generating a bit-string pattern forming said reference signals (column 9, lines 12-13) and a predetermined bit-string pattern forming

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said to-be-measured signals (column 8, lines 58-60), and a circuit for measuring a predetermined harmonic component from said reference signals recorded in said medium and from the reproduced signals said to-be-measured signals (column 2, lines 41-42 and column 9, lines 17-19).

Regarding claim 15, Baker et al. disclose a LSI for magnetic recording/reproduction, wherein said LSI for magnetic recording/reproduction includes a circuit for measuring the fifth harmonic component from the reproduced signals of the data read from said medium in which the data have been stored using said reference signals or said to-be-measured signals (column 8, lines 60-63).

Regarding claims 16 and 17, Baker et al. disclose a LSI for magnetic recording/reproduction, wherein said LSI for magnetic recording/reproduction includes a circuit for calculating a ratio V_{ab} ($=V_{5pat}/V_{5ref}$) and a non-linear shift based on the ratio of a second fifth harmonic component V_{5pat} which is a reproduced signal of the data read from said medium in which the data have been recorded using said to-be-measured signals to a first fifth harmonic component V_{5ref} which is a reproduced signal of the data from said medium in which the data have been recorded by using said reference signals (column 9, lines 15-20, p is the amplitude of the reproduced signal and p_r is the amplitude of the reference signal).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 21-23 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baker et al. in view of Foland, Jr et al. (USPN 6,005,731).

Regarding claims 21-23, Baker et al. disclose a device for magnetic recording/reproduction for measuring the non-linearity in the magnetic recording/reproduction of a medium by generating reference signals that are to be magnetically recorded into a medium, measuring a first predetermined harmonic component from the reproduced signals thereof (column 2, lines 36-38 and lines 40-42), generating to-be-measured signals corresponding to said reference signals that are to be magnetically recorded into said medium (column 8, lines 58-59), measuring a second predetermined harmonic component from the reproduced signals thereof (column 2, lines 40-42), and calculating a non-linear transition shift NLTS in said magnetic recording/reproduction from said first predetermined harmonic component and said second predetermined harmonic component (column 9, lines 15-16, p is the amplitude of the harmonic sample).

Baker et al. fail to explicitly disclose the device comprise a means for generating reference signals, and cyclically and serially shifting the data of the selected bit-string pattern. However this limitation is well known in the art as evidenced by Foland Jr. Et al. which disclose a device for testing a read/write channel comprising a pattern generator and a shift register to shift the data generated (column 9, lines 16-21). Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to modify the device of Baker et

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al. because Foland, Jr. Et al. teaches the to read/write system may comprise a pattern generator and a shift register to test the quality of the medium.

Regarding claim 27, Baker et al. disclose a LSI for magnetic recording/reproduction, wherein said LSI for magnetic recording/reproduction includes a circuit for measuring the fifth harmonic component from the reproduced signals of the data read from said medium in which the data have been stored using said reference signals or said to-be-measured signals (column 8, lines 60-63).

5. Claims 18, 20, 30 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baker et al. in view Lee (USPN 6,414,811).

Regarding claims 18, 20 and 30. Baker et al. fail to explicitly disclose the means for measuring the fifth harmonic component includes a Fast Fourier Transform unit. However this limitation is well known in the art as evidenced by Lee that discloses the harmonics may be measured using a Fast Fourier Transform unit (column 3, lines 6-7). Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to modify the device of Baker et al. because Lee teaches the harmonics may measured with a Fast Fourier Transform unit to reduce the time of the analysis.

Regarding claim 32, Baker et al. disclose the device for magnetic recording/reproduction includes a magnetic reluctance-type head for detecting said reproduced signals (column 3, lines 57-58).

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Allowable Subject Matter

6. Claims 4-8, 12-14, 19, 24-26, 31 and 33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rocio Colon whose telephone number is (703) 305-3947. The examiner can normally be reached on Mon-Thu 8:00a.m.-6:30p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on (703)308-4825. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


rcv

February 19, 2004


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